TRIP REPORT
BLACK HAWK USER'S CONFRENCE

- UH-60 FIELDING
  - Acceleration of UH-1 (04) and AH-1 retirement
  - National Guard should reach a total of 120 UH-60's by 2002
  - Goal is to supply the Reserve Component with Lift capability and the Active Component with Attack capability
  - LUH BN goes away
  - ARNG BN transforms from a 3X8 UH-60 to a 2X8 UH-60 configuration. The ARNG Medical units transforms from a 2X15 UH-60 to a 2X8 UH-60 configuration.
  - Flight school will increase a fleet from 69 to 90 UH-60 aircraft.
  - FY 02
    - All AC division's transform except for the 101st
    - All RC division's transform
    - OCNOUS EH-60's go to FT. Rucker
    - First 3 UH-60A to A Re-capitalization (RCAP) begin
    - Three UH-60A to UH-60M prototypes begin
  - FY 03
    - Numerous other units convert to new TO&E
    - Active Component TDA units have no plan in place to upgrade to UH-60's
    - UH-60A to A RECAP in full production
  - FY 04
    - Remaining AC units convert to new TO&E
    - 10 UH-60M begin initial production
  - FY 05 & Beyond
    - Begin filling ARNG CS Bde's with UH-60 aircraft
    - UH-60M in full production
    - Reach the ARMY goal of 1680 UH-60 aircraft
- TRANSFORMATION AND TRANSFER CRITERIA
  - The total ARMY will be required to keep a 90%MC rate. Regulations will be changed to reflect this change.
  - Due to the fact that the MC rate will change very little due to the lack of parts in the system to repair faults a new reporting status of NMCB will be initiated and will avoid changing an aircrafts status from NMCS to NMCM when conducting opportune maintenance while the aircraft is awaiting a shipment of a part.
  - Since our EH-60' are gone we escaped the transfer criteria that was handed down WHEW!
  - Aircraft that are being turned into the RECAP will be IAW 750-1, para 4-6f(1)
  - AVIM is to move under the Aviation BDE
- UH-60 SUPPLY POSTURE/CRITICAL PARTS UPDATE

Main XMSN Get well	NMCS: Aug 02	Overall: Aug 03
Main Rotor Blade Get well	NMCS: ?	Overall: ?
Spindle M/R Get well	NMCS: Jul 02	Overall: Sep 03
Tail Rotor Blade Get well	NMCS: Apr 02	Overall: Aug 04
Primary Servo Get well	NMCS: Sep 02	Overall: Mar 04
Actuator Stabilator Get Well	NMCS: Well	Overall: Apr 02
Servo Cylinder Get Well 01-305-6954	NMCS: Aug 02	Overall: Mar 03
Engine Get well	NMCS: Well	Overall: Mar 02
APU Get well	NMCS: Dec 02	Overall: Jun 04

NOTE: In some cases funding remains a problem in order to provide a sooner fix for critical part needs.

- PROGRESSIVE PHASE MAINTENANCE (PPM)
  - The 25th Avn BDE s conducting a PPM test
  - Aircraft maintenance is completed every 50 hours for ten cycles and equates to a 500hour phase
  - All other hourly and time driven inspections remain in effect
  - The test was conducted on New UH-60L's

NOTE: I brought up a concern that an AASF whom has 16 aircraft the inspections for many airframes could occur within a short period of time. In other words a PPM inspection would occur every 3.125 flight hours if the aircraft were flown at the optimum flow rate. The 50-hour inspections were taking 5-7 working days to complete with parts on hand. Intensive managing of flight hours would be required not to mention an ample supply of parts that are already inadequate for normal unanticipated maintenance.

- UNIT SIGHT VISITS BY SIKORSKY
  - No site visits were scheduled for CA in the near future
- SIKORSKY PRODUCT IMPROVEMENTS
  - AFCS to be replaced with the AFCC. A drop in placement. Should improve the reliability of the flight control system.
  - Main Landing Gear Drag Beam: Redesigned, material has been changed to replace the cadmium plating with ion vapor deposition, which will reduce the stress on the problem area.
  - Improved Engine Drive Shaft: Includes a different input module flange. Still a work in progress has a logistical problem at this time.
  - Improved input module seal: The new seal has shallow HYDRO pads on the mating ring. The seal operates in a non-contacting mode. It will fit in existing modules.
  - Stabilator Actuator: This project is still in progress and will be an all-digital design.
- TOP UH-60 UNIT OR KEYS TO SUCCESS:
  - Contract Support for open special WO's, AVIM work, DEPOT work, Phases, etc.
  - Pride of ownership: (Supporting the president, III corps commander and numerous other VIP's (this is a VIP unit)
  - Parts ordering and management of orders tracking
  - Dedication and proper CMD emphasis: Soldiers go the extra mile and don't leave until the job is completed and the <u>Unit Commander is a school trained MO and understand the maintenance issues,</u> <u>Adherence to the shortened flight week:</u> 3 days of flying to 2 days of maintenance ratio (prevents maintenance backlog and compensates for lack of personnel in an undermanned unit.
  - Staying pro active
- RE-CAPITALIZATION UH-60A to M:
  - UH-60A to A — Glass Cockpit
  - UH-60A to M — Flight Data Recorder
  - UH-60L to M — Dual digital flight control system (Hover Hold, Auto Pilot, etc)
  - Wide cord blades
  - Cruise speed 175KTS
  - Greater combat radius of 500KM
  - Power increase of 20% over L series (701D)
  - Fully integrated Cockpit
  - Level 1 flight handling qualities
  - Full air land warier integration
  - Increase service life
  - Standardizes the fleet
  - Rotor Brake
  - Instrument panel reduced from 58" to 52" wide
  - Tail cone active vibration analysis
- NEW PRODUCT TEST CONDUCTED BY D Co. 2-82/AVN, Ft Bragg, NC
  - Two types of MR Blade tapes were used (SCAPA and 3M Scotch) the results were favorable over the current Army version available. 3M can tolerate Blade De-Icing and both reduce blade wear dramatically extending blade life.

<u>NOTE</u>: I highly recommend the use of this product here at this facility. It can be used for the covering of minor repairs and allows for inspection due to its transparency and will reduce vibration incurred.

- LIFT SIMULATION MODERNIZATION PROGRAM:
  - New terrain data base includes:
    - Korea (to include 10miles into N. Korea)
    - Local IFR Data Base w/six local airfields
    - Other local VFR data base
  - New visual monitors

- ARC 220 capability
- ARC 201 radio
- 128B Doppler
- Tactical Environment feature
- Mountains, Desert, Rolling hills, coastline and other over water areas

❖ MAINTENANCE STANDARDIZATION TRENDS
- ATP must be a joint effort between the CDR and the SP
- Tailor CTL to the Aviator's requirements
- Insure you are logging 100hr ips readings in historical records
- ETF dates and numbers need to match with the historical and logbook
- AWR's need to be resent with proper current date and tail numbers as necessary
- QC form and records need to have general housekeeping in order

❖ UH-60 PPC/DES INFORMATION
- DES
  - Will conduct 100% evaluations
  - There are positions available for DES instructors at Fort Rucker
- Publications
  - AR 95-1 is being rewritten. Send 2028's this is your chance.
  - TC 1-210 rewrite in order to give clearer guidance
  - TC1-212 is in rewrite
  - TC 1-200 will replace TC 1-210
  - TC 1-237 will replace 1-212
  - NGR 95-1/210 being rewritten
- Emergency Procedure Training
  - Train EP's as a crew (i.e. land as soon as possible mind to hand action)
  - Brief immediate actions (stores jettison. Is it necessary?)
  - Brief single engine emergency IAS (give the number 80, 70, 100kts as necessary)
  - ECU/DEC lockout. Why go to the 6 o'clock position after lockout and why are you adjusting the RPM 10% below the other engine if power is needed?
  - Stabilator malfunction: Brief actions for person on controls. Is it practical to reduce airspeed during TO with a heavy load or continue acceleration and deal with the problem in the cockpit by manually slewing stabilator as necessary.
- PPC has been revised and a CD will be handed out. It can be integrated with Falcon View and amps to determine fuel and power needs throughout the flight.

NOTE: I have given the PPC CD to Bruce Malarky and Todd Moorehead for copying and distribution to AASF crews.

❖ ARNG MEETING
- MAJ Gereski discussed aircraft distribution. California's aircraft distribution has not changed from the briefings that I have received via SAO.

UNIT	Present Auth/OH	Chng 4th Qtr 02	Chng 03	Total	Auth
1-14th GSAB	8 / 10(+EH's)	5	1	16	16
126th	15 / 14	-2	-5	7	7

- Discussion was about transferring of aircraft in bulk that did not apply to this state. However they did go over a discussion about the normal standards of transfer criteria and the importance of the PBO being present during transfers due to the fact that the aircraft systems such as the ANLQ 144, AN/APR 39, KY-58's etc. will be transferred along with the aircraft. It was noted that a 1348-1 would have to be prepared for the transfer of each item on the losing units property book.

❖ NDI
- AMCOM does offer classes on NDI that range from 40-48hours in duration. This class does not certify the individual and the 1600hours of practical training still applies.
- The 68D MOS is the only one authorized to attend the full course in Pensacola while anyone may attend the AMCOM course.
- There are no level 2 inspector's in the state of California at this time

NOTE: I highly suggest that we identify a minimum of two persons to attend the AMCOM course and set up a training program with Keith Morrow at March AFB. I do not feel the employees at this facility that posses the 68D MOS are fully capable of such responsibility.

- RECAPITALIZATION: The UH-60 RECAP programs are designed to sustain and upgrade the Black Hawk. The main advantage will be replacing components to RECAP standards (Near Zero Time Components). Basically upgrading selected components when they are turned in thru CCAD. They will have extended service life, improved systems, and reliability.
- CCAD
  - T700 Engine rebuild has improved dramatically
  - Main Mod shafts are in short supply. They are cannibalizing unserviceable XMSNS at this time and DLA is presently working on a parts acquisition solution
  - DRIVE SYSTEM ISSUES:
    - Sumps are beginning to develop cracks underneath. Sump has been redesigned and is being fielded
    - A temporary fix is adjusting the oil pressure to minimum pressures
    - Lubrication system is being improved to include a 3 micron filter, coated parts, and new lubricants
    - Work with LAR and Sikorsky representative when chips are found and you question the requirement to replace the gearbox. They will analyze the chips metal content and make a recommendation based on findings. Scott.Abernathy@rdec.redstone.army.mil
- AIRWORTHINESS AVIATION ENGINEERING DIRECTORATE: Discussed the recent issues to include the Pivot Bolts and Blade Pin issues
- Mr. Michael Durant spoke about related issues to his experience in Somalia
- SAFETY UPDATE: The most interesting subject was the JSHIP operations that are being conducted in San Diego. I highly suggest that our SIP contact Mr. Bob Giffin. I have handouts that I will distribute to Mr. Moorehead on this subject. I think we should get in on the ground floor while the manual is being written on JSHIP operations especially when the testing is occurring in our back yard (San Diego).
- MTP COURSE: Some issues discussed were the concerns that no one is presently being trained on the UH-60L due to the fact that the school has no UH-60L's to train on. If a CTL notes that you are qualified as an MTP in both seats, you as a test pilot will be evaluated in both seats and should know what tasks cannot be performed from the right seat, The required task iterations will be increased from one (1) to four (4).
- AGSE: Many new support items are in development and will be fielded in the near future.
  - NAPS: New Aviation Power System to replace all existing AGPU. Will feature an all-digital panel control and used for all types of aircraft.
  - CAMPS: A new AVIM containerization modernization program and new AVIM shop sets.
  - UMARK: Unit Maintenance Recovery Kit that will replace all current recovery kits
  - NEW AVA: This is still in development and includes an on aircraft system analysis. It will be incorporated into the aircraft design.
  - DAWS: Digital Aircraft Weight Scales
  - ACDS: Acft cleaning and de-icing system that will recycle and filter the water runoff so that it may be used in remote areas and comply with environmental regulations.
  - SATS: Standard Aircraft Towing System is a new tug that will standardize the Army's towing vehicles.
- GE T700 FIELD STATUS: There have been twelve (12) In Flight Shut Down's (IFSD) this year and the HMU and Anti-ice/Start Bleed Valve's have accounted for approximately 80% of these failures. Ground and in flight flameouts while retarding the PCL form fly to idle have been caused by the HSD HMU. If torque stiction is occurring be sure to check the PT shaft SN and call GE representative. The AI/SBV PN G05 should have been eliminated from the field however there are still some out there so beware. An HMU spindle check has been added to the troubleshooting procedures. There are training and videos available for maintenance on the T700 Engine from your GE representative.
- MAINTENANCE/SAFETY LESSONS LEARNED: The following is a list of issues that if followed can save time and money. These are facts compiled from the field and can apply to any maintenance organization:

- Insure you personnel have been given the proper training and carry out their duties in a professional manner. Give them the proper mental tools to accomplish the job. (Some personnel are trying to accomplish tasks which they are not trained for such as inspecting items required on an ASAM and not really understanding the task)
- Perform all tasks by the book (Note that there are changes constantly occurring especially during this period of upgrades)
- Treat the cause not the symptoms when troubleshooting (exchanging a radio because the pilot writes that the signal is weak without checking the system)
- Adhere to the published maintenance schedule (limits are established for a reason)
- Properly track life limited parts.
- Protect parts during handling (There are reasons that items such as bolts are shipped in paper then bubble then foam and placed in a hard case)
- Properly TQ all connections (causes excessive bolt wear)
- Conduct expandable pin tension check as published (some pins that were not removed completely for inspection were found to be broken when removed during a proper inspection)
- Some blade pins have slots missing (Only blade pin's with an E prefix should not have a slot)
- Use the proper tools for the right job (don't be using hammers to insert seals)
- Use the proper procedure when taking the weight off the blades for tension checks (while removing one blade pin for inspection the person holding the blade up with his feet while flat on his back lost balance of the blade causing the damage of the blade and knocking the mechanic inspecting the blade pin off the aircraft)
- Beware of FOD (Still reports of excessive FOD incidents)
- Inspect servo piston integrity
- Inspect the bottom of servos (when excessive leaking occurs there have been incidents where scratches underneath the piston were the cause)
- Watch where you step. Some areas are easily damaged and others are dangerous.
- Maintain clearances between wires and cotter pins (the ASAM on the cyclic wiring is a good example)
- Lubricate pivot bolts and ensure that the pin and balls work freely
- Install all required hardware
- Perform all required inspections
- Properly inspect oil levels (there was an incident where helicopters experienced hard landings due to failure of the tail rotor gearbox. The gearbox was not serviced after maintenance was performed and the sight glass was to dirty to make a proper visual check on the oil level)
- Do not exceed load limits of working surfaces (The AH-64 community has had several of the maintenance decks fail while crews were working on the engine cowlings)
- Inspect Main Rotor Blades: This is a common oversight during PMS-1 and pre-flights
- Inspect bearing's (fluid dampners) for leakage and do not pressure wash aircraft.
- Fatigue Substantiation Approaches: Pilots must understand that the aircraft limits in the –10 affect the calculated retirement life of several critical components. Strength, loads, and usage of aircraft hardware are all important means in determining TBO's. A good example is the main rotor expandable blade pin. On a UH-60A the retirement life is 4700hrs, on a MH-60K 1100hrs, on a UH-60L 5100hrs, and on a SH-60B 4600hrs.
- To prevent HS shaft failures TQ checks must be completed every 100hrs, Vibration analysis checks every 100hrs

❖ TRACK & BALANCE: The following area few tips that were issued by Sikorski.
- Once the main rotor blades are within ground track there is no need to get them closer before flight
- There s no need to fly again after the flight tracks are in and you have made your final ground balance
- Tabs effect A+B three times as much as A-B, Tab's and PC Rods must be used together not just one without the other
- Trim tabs can be adjusted .030in per flight, not total.
- Trim tab adjustment is referenced from the current setting and not the original factory settings
- If the difference between the six trim tab stations exceeds .015in take an average and set the whole trim tab to that reading

❖ ENGINE PERFORMANCE ISSUES:

- Anti-ice start bleed valves anomalies and effects on the HMU were discussed. The GARRET valve is not a concern but the Eaton valve has caused flameouts due to binding the anti-ice valve. Binding in the IGV's or PT shaft can also cause flameouts.
- Alternator failures and partial failures have occurred due to the grommet around the wiring swelling and pulling wires away from the connection
- Torque stiction (erroneous TQ signal, 21/22% residual TQ reading when the PCL is at idle, there should be no more than 5% residual torque) what is happening is the internal shaft binds with the outer shat caused by carbon buildup from burnt lubricants. Research is being conducted for a possible re-design
- Low engine performance are being caused by AI/SBV stiction, bleed air leaks, FOD/erosion damage to the compressor blades, dirty compressors. The recommended actions are replacing the AI/SBV, repairing the bleed air leaks, and repair/replace engine.
- There is a fresh water rinse that is being tested to effectively rinse engines at idle or full rpm. This requires a slight modification to the engine. Note that after an engine wash some engines HIT checks may degrade, this is an indication that the compressor may be so dirty that some blades may have been cleaned and others still have thick carbon/dirt buildup. It was discussed that the best cleaner available is the BNB 3100 however all cleaners are equivalent in effectiveness if flushed 3 times.

❖ MAINTENANCE TEST PILOT ISSUES:

- It was discussed that consideration is being placed on an ME conference at Fort Rucker. Feed back on this and other MTP issues can be forwarded to Kevin.Calloway@rucker.army.mil
- Seat authorization (L) or (R) should be annotated on the MP's CTL
- IP's readings on 100hr services need to be current on all aircraft historical records
- Engine ETF's need to be current on all aircraft historical records
- AWR's need to be current and comply IAW the writing and time limits. Any alterations need to be updated by AMCOM